ESSENTIAL CHEMISTRY. INNOVATIVE SOLUTIONS.

SAFETY DATA SHEET

Print Date: July 30, 2025

Section 1: Product & Company Information

Product Identifier: **Sodium Molybdate, Dihydrate**

Other Means of Identification
Product Number: 176004

Recommended Use and Restrictions on Use
Recommended Use: Micronutrient in manufacture and use of fertilizers, micronutrient in feed additives, corrosion inhibitor, manufacture of pigments, industrial detergents for metal surface treatment, cleaning, and maintenance material, as a coolant/antifreeze/heat transfer fluid, as a metal working fluid, industrial formulation and use of lubrication additives, lubricants and greases, manufacture and use of water treatment chemicals, polymer preparations and compounds, industrial chemical products such as pH regulator, flocculants, precipitants, neutralization agents, extraction agents, phytochemicals, manufacture and use of catalysts, regeneration and recycling.
Restrictions on Use: Not known.

Manufacturer / Importer / Supplier / Distributor Information
Company Name: CORECHEM Inc.
Address: 4320 Greenway Drive
Knoxville, TN 37918
USA

Information Telephone Number: 1-865-524-4239
Fax Number: 1-865-524-3375
Website: www.corecheminc.com
Contact Person: Regulatory Manager
E-mail: regulatory@corecheminc.com

Emergency Phone Number: Chemtrec® 1-800-424-9300 / Outside USA 1-703-527-3887 *(monitored 24 hours/day)*

Section 2: Hazards Identification

GHS Hazard Classification(s)
Not classified as hazardous according to OSHA Hazard Communication Standard 29 CFR 1910.1200 (HazCom 2012).

Physical Hazard(s)
Not classified.

Health Hazard(s)
Acute Toxicity, Inhalation - 4

Environmental Hazard(s)
Not classified.

Label Elements
Signal Word
WARNING

Hazard Symbol(s)

Hazard Statement(s)
H333: May be harmful if inhaled.

Precautionary Statements
General
Not applicable.

Prevention
P260: Do not breathe dust/fume/gas/mist/vapors/spray.
P271: Use only outdoors or in a well-ventilated area.

Response
P304 + P340: IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.

Storage
Not applicable.

Disposal

Not applicable.

Hazard(s) not otherwise classified (HNOC)

None known.

Section 3: Composition/Information on Ingredients

Mixture

Chemical Identity [2]	Common Name/Synonym(s)	CAS # [3]	Weight %	Impurity or Stabilizing Additive
Sodium Molybdate (Hydrated Form)	Disodium Molybdate Dihydrate	10102-40-6	99 – 100%	No

1. Information regarding the composition and the percent ranges of the mixtures ingredients are not presented as it Confidential Business Information (CBI). Where a medical emergency exists (as determined by medical professional), timely disclosure of CBI is assured. The information omitted pertains to only the names of the substances and the concentration in the mixture (product) and can only be requested by a doctor/physician or Local/State/Provincial or Federal Authority.
2. Non-hazardous ingredients are not presented as to protect the proprietary formula of the product.
3. "—"Indicates ingredient is a mixture and contains multiple ingredients or may have no identifying CAS number.

Section 4: First-Aid Measures

General Information

Sodium Molybdate is not classified as a hazardous substance and no substance specific toxological hazards are expected. Nevertheless, the following generic first aid measures should be applied as usual when handling any chemical substance. First aid responders should wear suitable personal protective equipment in case of insufficient ventilation or possible inhalation or eye contact.

Inhalation

Remove patient from exposure and bring to fresh air. If breathing has stopped, perform artificial respiration and get medical advice/attention immediately.

Skin Contact

Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention if symptoms occur. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.

Eye Contact

Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention if symptoms persist.

Ingestion

Seek medical advice or attention if feeling unwell.

Most important symptoms/effects, acute and delayed

Symptoms

Acute or delayed effects are not anticipated for sodium molybdate.

Indication of immediate medical attention and special treatment needed

Hazards

No data available.

Treatment

Treat symptomatically. Symptoms may be delayed.

Section 5: Fire-Fighting Measures

General Fire Hazards

In case of fire and/or explosion do not breathe fumes.

Suitable (and Unsuitable) Extinguishing Media

Suitable Extinguishing Media

Standard extinguishing media such as water, sand, foam. Use firefighting measures that suit the location of surroundings. Sodium Molybdate is not considered flammable or combustible.

Unsuitable Extinguishing Media

None known.

Specific Hazards Arising from the Chemical

Fire or excessive heat may produce hazardous decomposition products.

Special Protective Equipment and Precautions for Firefighters

Special Fire-Fighting Equipment Procedures

Move containers from fire area if you can do so without risk. Use water spray to keep fire-exposed containers cool.

Special Protective Equipment for Fire-Fighters

As in any fire, wear self-contained breathing apparatus pressure-demand (OSHA/NIOSH approved or equivalent) and full protective gear.

Section 6: Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures

Evacuate spill area. Isolate hazard area and deny entry to unnecessary or unprotected personnel. Stay upwind and keep out of low area. Remove all possible sources of ignition in the surrounding area. Wear appropriate personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. See Section 8 of the SDS for Personal Protective Equipment. Ventilate contaminated area thoroughly shut off leaks if possible without personal risk.

Methods and Materials for Containment and Clean-Up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Do not flush with water. Keep in suitable, closed containers for disposal.

Notification Procedures

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

Environmental Precautions

Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

Section 7: Handling and Storage

Precautions for Safe Handling

Avoid breathing dust or vapor. Observe good industrial hygiene practices. Avoid conditions which create dust. Wash contaminated clothing before reuse. Avoid contact with eyes. Avoid contact with skin.

Conditions for Safe Storage, including any Incompatibilities

Keep container tightly closed. Store in a cool, dry, well-ventilated place.

Avoid formation of dust, inhalation and ingestion. General occupational hygiene measures are required to ensure safe handling of the substance. These measures involve good personal and housekeeping practices (i.e. regular cleaning with suitable cleaning devices), no eating, drinking and smoking at the workplace and wearing standard working clothes and shoes unless otherwise stated. Wash hands after contact with the powder or fume. Remove contaminated clothing and protective equipment before entering eating areas. Shower and change clothes at end of work shift. Do not wear contaminated clothing at home. Do not blow dust off with compressed air.

Section 8: Exposure Controls/Personal Protection

Control Parameters

Occupational Exposure Limits

Chemical Identity	Type	Value	Source
Sodium Molybdate (Hydrated Form) – Respirable fraction	TWA	5 mm/m3	US. ACGIH Threshold Limit Values
Sodium Molybdate (Hydrated Form) – Total dust	PEL	5 mg/m3	DFG MAK
	TWA	5 mg/m3	US OSHA Table Z-1
Sodium Molybdate			

Biological Limit Values

The product does not contain any relevant quantities of hazardous materials with assigned biological limit values.

Appropriate Engineering Controls

Use appropriate engineering controls to minimize exposure to dust generated via routine use. Maintain adequate ventilation of workplace and storage areas.

Exposure Controls

This substance is not classified as a hazardous substance and no substance specific toxological or ecotoxicological hazards are expected. Nevertheless, in some circumstances high airborne dust concentrations may require local or general ventilation to control worker exposure in general. Where ventilation is unable to control the workplace dust levels to below the OEL, then respirator controls must be used. However, no exposure controls specific to this substance are required, other than good hygiene practice and adherence to national and regional provisions with regards to exposure to dust in the workplace. National, regional or local provisions or limit values may also apply for emissions to air and water. The generic advises on accidental release measures and on handling and storage given in sections 6 and 7 above should be followed to minimize release and exposure.

Individual protection measures, such as personal protective equipment (PPE)

General Information

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Eye/Face Protection

Wear safety glasses with side shields. Wear safety glasses with side shields or goggles when handling this material.

Skin Protection

Hand Protection

Wear appropriate chemical resistant gloves. Wear protective clothing when handling this product to prevent prolonged skin contact.

Other

Wear protective clothing when handling this product to prevent prolonged skin contact.

Respiratory Protection

In case of inadequate ventilation use suitable respirator. During dust-raising work: Dust and mist respirator. Avoid breathing dust or mist. Use NIOSH approved respiratory protection equipment when air borne exposure is excessive.

Hygiene Measures

Provide eyewash station and safety shower. Observe good industrial hygiene practices. Wash hands before breaks and immediately after handling the product. Do not eat, drink or smoke when using the product. Wash contaminated clothing before reuse.

Section 9: Physical and Chemical Properties

Appearance:
- Physical State: Solid
- Color: Colorless to White

Odor: Odorless
Odor Threshold: No data available.
pH: 7.0 – 10.0
Melting Point/Freezing Point: 687 °C
Initial Boiling Point and Boiling Range: No data available.
Flash Point: Not applicable.
Evaporation Rate (butyl acetate=1)**:** No data available.
Flammability (solid, gas): No data available.
Upper/Lower Limit on Flammability or Explosive Limits
- Flammability Limit – Upper: No data available.
- Flammability Limit – Lower: No data available.
- Explosive Limit – Upper: No data available.
- Explosive Limit – Lower: No data available.

Vapor Pressure: No data available.
Vapor Density (air =1)**:** No data available.
Relative Density (water=1)**:** 3.28 (25 °C)
Solubility(ies):
- Solubility in water: 840 g/l (100 °C)
- Solubility (other): No data available.

Partition coefficient (n-octanol/water): No data available.
Auto-Ignition Temperature: No data available.
Decomposition Temperature: 100 °C
Viscosity: No data available.

Other Information:
- Molecular Weight: 241.95 g/mol
- Formula: No data available.

Section 10: Stability and Reactivity

Reactivity

No dangerous reaction known under conditions of normal use.

Chemical Stability

Material is stable under normal conditions.

Possibility of Hazardous Reactions

Molybdates react violently or explosively when reduced to molybdenum by heating with zirconium. Furthermore, in the preparation of dyestuffs from aniline, nitrobenzene (as oxidant), hydrochloric acid and sodium hydroxide, ferric chloride is often used as catalyst, but Sodium Molybdate was substituted as a more effective catalyst. The materials were charged into a 4.5 m3 reactor and heating was started after addition of nitrobenzene, but the temperature controller was mis-set, and overheating at a high rate ensued. The exothermic reaction was much higher than normal because of the more effective catalyst, and partial failure of the cooling water led to an uncontrollable exothermic reaction.
Other hazardous reactions have not been identified.

Conditions to Avoid

Avoid exposure to extreme temperatures, contact with incompatible chemicals, uncontrolled contact with accelerants. Sodium Molybdate will explode on contact with molten magnesium.

Incompatible Materials

Alkali metals. Oxidizing agents. Most common metals. Reacts with interhalogens (e.g. bromine pentafluoride). Reacts with hot sodium, potassium or lithium.

Hazardous Decomposition Products

Fire or excessive heat may produce hazardous decomposition products.

Section 11: Toxicological Information

Information on routes of exposure

Ingestion: May be harmful if swallowed.
Inhalation: May be harmful if inhaled.
Skin Contact: Not sensitizing to the skin.
Eye Contact: Not corrosive to the eyes.

Information on Toxicological Effects

Acute Toxicity (List all possible routes of exposure)

Oral

Sodium Molybdate: LD50: Oral (Rat) between 2733 and 6556 mg/kg bw

Dermal

Sodium Molybdate: LD50: Dermal (Rat) > 2000 mg/kg bw

Inhalation

Sodium Molybdate: LD50: Rat (4h) > 1.93 mg/L (male/female)

Repeated Dose Toxicity

No data available.

Skin Corrosion/Irritation

May cause skin irritation.

Serious Eye Damage/Eye Irritation

May irritate eyes.

Respiratory/Skin Sensitization

Not a skin sensitizer.

Carcinogenicity

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

US. National Toxicology Program (NTP) Report on Carcinogens

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Germ Cell Mutagenicity

In Vitro

No mutagenic components identified.

In Vivo

No mutagenic components identified.

Reproductive Toxicity

None known.

Specific Target Organ Toxicity – Single Exposure

None known.

Specific Target Organ Toxicity – Repeated Exposure

None known.

Aspiration Hazard

Not classified.

Other Effects

None known.

Section 12: Ecological Information

Ecotoxicity

Acute Hazards to the Aquatic Environment

Fish

Sodium Molybdate: LC50: (Freshwater fish: Pimephales promelas) 609-681.4 mg Mo/L
Sodium Molybdate: LC50: (Freshwater fish: Oncorhynchus mykiss) 7600 mg Mo/L
Sodium Molybdate: LC50: (Freshwater fish: Oncorhynchus mykiss) 781-1339

Aquatic Invertebrates

Sodium Molybdate: LC50 (Daphnia Magna) 1680.4 -1776.6 mg Mo/L
Sodium Molybdate: LC50 (Daphnia Magna) 2729.4

Toxicity to Aquatic Plants

No data available.

Chronic Hazards to the Aquatic Environment

Fish

No data available.

Aquatic Invertebrates

Sodium Molybdate:

Toxicity to Aquatic Plants

No data available.

Persistence and Degradability

Biodegradation

Sodium Molybdate. When released into the environment- Will rapidly dissolve and will be present as the molybdate species under normal environmental conditions.

BOD/COD Ratio

No data available.

Bioaccumulative Potential

Bioconcentration Factor (BCF)

Available BCF/BAF data for the aquatic environment show a distinct inverse relationship with the exposure concentration. This finding demonstrates that Molybdum is homeostatically controlled by these organisms, and this up to the milligram range of exposure. Available information on transfer of molybdenum through the food chain indicates that Molybdum does not biomagnify in aquatic food chains. Although not homeostatically controlled in terrestrial plants and invertebrates, molybdenum is not largely concentrated from soil into plants, or soil to invertebrates. There is no significant concentration increase from diet to mammals or birds. It is concluded that biomagnification is not significant in the terrestrial food chain.

Partition Coefficient n-octanol / water (log Kow)

No data available.

Mobility in Soil

Molybdate originating from sodium molybdate dihydrate is soluble in water and with its relatively low K_d value the molybdate ions are leachable through normal soil and are mobile in sediment. Typical log K_d values of 3.25 and 2.94 have been determined for sediment and soil respectively.

Other Adverse Effects

Molybdate originating from Sodium Molybdate Dihydrate can contribute to the onset of molybdenosis (Which is a molybdenum induced copper deficiency. In ruminants such as cattle, deer and sheep. The level and bioavailability of copper in the animal diet are critical factors in the onset of molybdenosis. The recommended minimum dietary Cu: Mo mass ratio threshold to prevent molybdenosis is 1.30. i.e. there should be 30% more copper than molybdenum in the (note: mass ratio, not molar ratio) Cu and Mo content in the diet can be monitored, and if the ratio is < 1.3 then provide Cu Supplements such as copper sulphate enriched feeds or copper sulfate enriched salt blocks for ruminants to use ad libitum. If there are ruminants near the plant, identify direct and diffuse air emission sources at the plant and carry out and record emission minimization measures. Have an animal health check programme in place (e.g. blood tests for copper.) to verify that the measures are effective. Sodium Molybdate dihydrate is not expected to contribute to ozone depletion, ozone formation, global warming or acidification.

Section 13: Disposal Considerations

Disposal Instructions

Discharge, treatment, or disposal may be subject to national, state, or local laws. Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Contaminated Packaging

Since emptied containers retain product residue, follow label warnings even after container is emptied.

Section 14: Transportation Information

US Department of Transportation (DOT)

This material is not regulated as a hazardous material for transport by the U.S. Department of Transportation in accordance with 49 CFR 172.101.

Section 15: Regulatory Information

US Federal Regulations

Toxic Substance Control Act (TSCA), Chemical Substance Inventory, Section 8(b)

This product or ingredient(s) are listed on the TSCA inventory. Any impurities present in this product are exempt from listing.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Hazardous Substance List (40 CFR 302.4)

No chemical(s) in this material are subject to the reporting requirements of CERCLA.

Clean Air Act (CAA), Section 112(r)

No chemical(s) in this material are subject to the reporting requirements of CAA.

Emergency Planning and Community Right-To-Know Act (EPCRA)

EPCRA 302 Extremely Hazardous Substance

No chemical(s) in this material are subject to the reporting requirements of SARA Title III, Section 302.

EPCRA 304 Emergency Response Notification

No chemical(s) in this material are subject to the reporting requirements of SARA Title III, Section 304.

EPCRA 311/312 Emergency and Hazardous Materials Reporting

Fire Hazard:	No
Sudden Release of Pressure:	No
Reactive:	No
Acute (Immediate) Health Hazard:	Yes
Chronic (Delayed) Health Hazard:	No

EPCRA 313 Toxic Chemical Release Inventory (TRI) Reporting

This material does not contain any chemical(s) with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

US State Regulations

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

Important Note: Due to the changing nature of regulatory requirements, the information in this document should NOT be considered all-inclusive or authoritative. Users should make their own investigations to determine the suitability of the information for their particular purposes. International, Federal, State and Local regulations should be consulted to determine compliance with all required reporting requirements.

Section 16: Other Information

Hazardous Materials Identification System (HMIS®) Classification

Health Hazard: 1
Chronic Health Hazard: /
Flammability: 0
Physical Hazard: 0
Personal Protection: D
(Hazard Rating: 0 – Minimal / 1 – Slight / 2 – Moderate / 3 – Serious / 4 – Severe)

National Fire Protection Association (NFPA 704) Rating

Health Hazard: 1
Fire Hazard: 0
Reactivity Hazard: 0
Special: N/A
(Hazard Rating: 0 – Minimal / 1 – Slight / 2 – Moderate / 3 – Serious / 4 – Severe)

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Key to Abbreviations and Acronyms

ATE - Acute Toxicity Estimate
BCF - Bioconcentration Factor
EC50 - Effective concentration, 50%
IDHL – Immediately Dangerous to Life and Health
Kg – Kilogram
l – Liter
lb – Pound
LC50 - Lethal Concentration, 50%
LD50 - Lethal Dose, 50%
mg - milligram
ml – milliliter
N/A – Not Applicable
N/D – Not Determined
PEL – Permissible Exposure Limit
REL – Recommended Exposure Limit
STEL – Short-term Exposure Limit
TWA - Time weighted average
ACGIH - American Conference of Industrial Hygienists
AIHA – American Industrial Hygiene Association
BEI - Biological Exposure Indices
CAS – Chemical Abstracts Service
DOT – US Department of Transportation
EPA – US Environmental Protection Agency
GHS - Globally Harmonized System of Classification and Labelling of Chemicals
IARC - International Agency for Research on Cancer
IATA - International Air Transport Association
IBC - Intermediate Bulk Container
IMDG - International Maritime Dangerous Goods
NIOSH – National Institute for Occupational Safety and Health
NTP – National Toxicology Program
OSHA – US Occupational Health and Safety Administration
SARA – US EPA Superfund Amendments and Reauthorization Act
TSCA – US EPA Toxic Substances Control Act
UN - United Nations

References

HSDB® - Hazardous Substances Data Bank

Disclaimer

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